Preparing for coronary angioplasty: the patients' experiences

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Abstract:– Coronary angioplasty and stent placement procedures now represent one of the fastest growing specialties in cardiac care; patients undergo a short stay admission with limited care time with nurses. The purpose of this study was to describe participants' experiences of preparing for angioplasty in such an environment. Eight men and three women were interviewed 1 month after discharge from hospital. Verbatim transcripts were analysed for major themes using the qualitative techniques of grounded theory.

Participants described working through a problem solving process in response to the perceived health threat associated with undergoing angioplasty. In step one, the problem was identified. In step two, coping responses were taken to try and solve the problem. In step three, the results of the coping responses were appraised or evaluated. The two problems identified were ongoing chest pain and anxiety related to fear of the unknown. The coping responses initiated included acquiring knowledge of the angioplasty, confidence in the skill of the doctor, support from family and gearing up psychologically. In the final appraisal of the coping responses, the participants decided to either go ahead with, or delay the angioplasty procedure.

The results of this study indicate that the preparation for angioplasty represents a period of adjustment that may be anxiety provoking. Participants' experiences provide new knowledge of the concerns and challenges faced when undergoing such an invasive procedure in a short stay environment. The results clearly highlight that psychosocial aspects of nursing care are an essential component of nursing practice for angioplasty patients.

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INTRODUCTION

Coronary angioplasty and intracoronary stent placement have emerged from being rare and risky procedures to the fastest growing speciality in cardiac care. Percutaneous transluminal coronary angioplasty (PTCA) and intracoronary stent placement offer an alternative treatment choice to coronary artery bypass surgery in the management of coronary artery disease. PTCA offers immediate relief of symptoms, low risks and a swift return to normal activities [1, 2].

Improvements in technology and technique have resulted in shorter hospital PTCA admissions of only 1-2 days. Such a short stay, high turnover environment limits the time available for nurses to support and care for those undergoing these procedures. Recent research into outpatient or day case angioplasty has demonstrated that the need for medical admission to hospital is becoming obsolete [3]. The outcome of such care delivery models seems to show that patients are expected to recover on their own, at home, and following limited care time with nursing and medical staff.

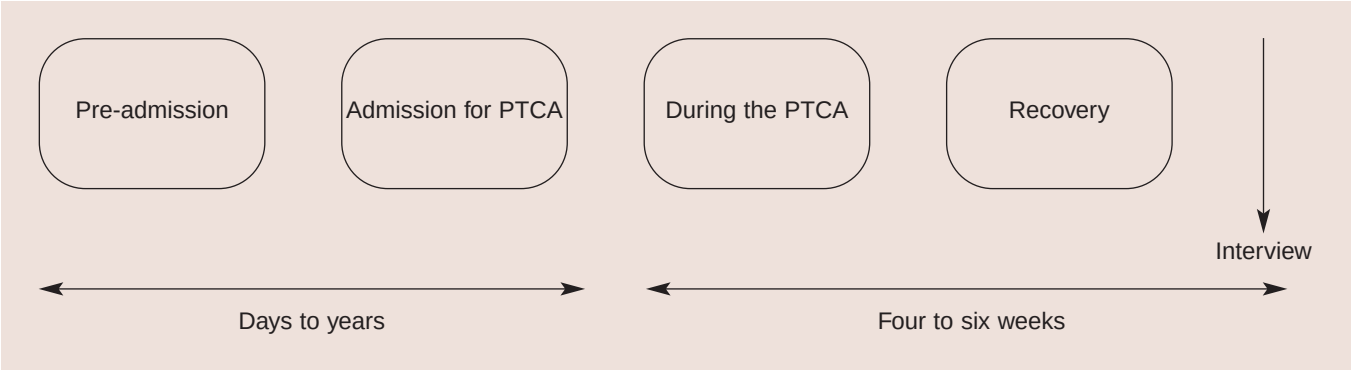
The purpose of the study was to describe the participants' perceptions of recovery after angioplasty. However, they also described perceptions of the events prior to and including the procedure. Consequently, the study expanded to describe four phases that reflected perceptions of PTCA across a time continuum; pre-admission, admission, during the procedure and the recovery phase (Figure 1). The admission for PTCA phase is reported in this article.

LITERATURE REVIEW

Coronary angiography and angioplasty continue to cause the patient considerable stress and anxiety, despite the reported benefits of such procedures [4, 5].

Beckerman [4] conducted a phenomenological study into the patients' perceptions of the diagnostic coronary angiography procedure; ten male patients were interviewed following the procedure. Apprehension and anxiety before the test were common themes in participants' responses. Fear of the unknown

Figure 1. Model of time continuum in relation to the four phases.



and the desire for information to demystify the unknown were both reported in every interview. Participants also described feelings of loss of control over physical and personal self and fear about the future as major causes of anxiety. This study identified that pre-procedure anxiety was common and represented a stressful period in the hospital experience. Beckerman [4] further contended that more attention was needed to address the psychological aspects of the test and the positive and negative effects on the patient.

Peterson [5] also explored the psychological aspects of coronary angiography in a two phase study. The first phase involved open interviews with 30 patients which were analysed for content regarding patient concerns. Concerns expressed included the waiting time on the day of the test, aspects of the test such as having the catheters inserted and possible complications such as heart attack and stroke. Possible test outcomes, such as bypass surgery or angioplasty, and the effects of post care, such as having to lie flat for 6-12 hours, were also reported as being anxiety provoking [5].

Seventy two patients were recruited for Peterson's second phase of the study. They were randomly assigned either to an educational intervention, a social intervention or a control group. The Spielberger State-Trait Anxiety Inventory was used to assess anxiety levels. The educational ($p=0.001$) and social intervention ($p=0.001$) groups reported a significant decrease in anxiety compared to the control group [5], yet there was no significant difference between the two intervention groups.

Peterson reinforced the need for nurses to relate to patients as human beings and to provide both educational and psychological support. However, both phases of the study were specific to the diagnostic test (angiography) rather than the treatment intervention (angioplasty) which carries greater risks to the individual [6].

More recently, Gulanick *et al.* [7] undertook a qualitative research study of 45 participants in an endeavour to describe the angioplasty experience from the patients' perspectives. Focus groups were held consisting of small numbers of patients who had undergone coronary angioplasty in the previous 3-18 months. Interviews were tape recorded and a data analysis was conducted utilising a constant comparative method [7].

Positive themes identified in this study included contentment with comfort measures, satisfaction with supportive hospital care and trust in medical competence [7]. The most frequent theme was satisfaction with hospital care before, during and after the PTCA. Supportive care prior to the procedure centred on education and emotional support, while some participants commented on the literature and videos used for education [7].

Negative themes included anger over unmet needs for comfort or support, feeling dehumanised and frustration with lack of control in decision making [7]. Negative feelings ranged from general disgust to the worst experience possible. Several commented on feeling dehumanised and felt like they were treated in a disrespectful, assembly-line fashion [7].

These results highlighted the perceptions and needs of angioplasty patients and pointed out the necessity for nurses to play a greater role in providing patients with the emotional support and information required to meet their needs. This study has been instrumental in illuminating the needs of angioplasty patients in hospital.

Gaw [8] examined patients' experiences, perceptions and motivations for lifestyle modification following elective PTCA. Utilising a qualitative approach, interviews were conducted with 14 patients before, after, and 2-3 weeks following the procedure. Anxiety was also identified as a common experience prior to the angioplasty and supports the work of Beckerman *et al.* [4] and Peterson [5]. Specific anxieties were identified in relation to fear of death, fear of bypass surgery and fear of severe chest pain during the PTCA procedure [8].

Similarly, seeking information to demystify the unknown was also reported. All participants received an information pamphlet and instruction from the cardiologist. No mention was made of nursing interventions. Seven of the 14 participants reported that they were unsure of how the procedure would help relieve their chest symptoms. Furthermore, nine out of 14 would have liked more specific information on how the procedure worked [8]. These results further highlight the need for nurses to play a greater role in helping patients to cope with pre-procedure anxiety, through education and psychological support.

The research findings suggest that these invasive procedures were not viewed as routine and minimally invasive by the patient. Rather, they represented an anxiety provoking situation which may be either a positive or negative experience for the patient. However, nurses are limited by the amount of literature available which provides a deeper understanding of the physical and psychological concerns patients may face as they undergo invasive coronary angioplasty procedures. The current study aimed to address this knowledge gap and provide greater knowledge of PTCA from the patients' perspectives.

METHOD

Design

The design of the study utilised grounded theory methodology. This qualitative methodology uses a systematic set of procedures to conduct, analyse and theorise about the phenomenon under investigation[9]. The grounded theory techniques used in this study were theoretical sampling, open and axial coding and the constant comparative method[9].

Sample and setting

Eleven participants were selected from the cardiology and intensive care units of a private metropolitan hospital. The hospital's Ethics Committee granted ethical approval. People from all cultural groups who could communicate in understandable English, were over the age of 18 and were scheduled for elective angioplasty were eligible for the study.

Procedure

The researcher approached potential participants prior to the PTCA and each were given a study description sheet and consent form. Opportunities for discussion were given and consent was obtained voluntarily. Participants were given the option to withdraw at any time.

An interview date was made for 1 month after the angioplasty procedure date. The tape recorded interviews were conducted in the person's home. A semi-structured interview was conducted which aided the participant to focus their thoughts whilst allowing them the freedom of expression. It also allowed the researcher to clarify issues, gain further explanations and information. In this way, data saturation could be achieved.

Data analysis

The tapes were later transcribed and each was compared to ensure it was an accurate record of the interview. In addition, the data analysis was reviewed by research colleagues to ensure the researcher's interpretation were not biased. Grounded theory data analysis techniques were then utilised. First, the constant comparative method was used during concurrent data collection and analysis to identify recurrent themes. The second step was open coding which involved line by line analysis for themes and assigning a code to each theme. Each code was then compared and clustered into categories. Each category was further defined by its properties and dimensions[9]. Chest pain and anxiety were examples of two of the categories. The final step was axial coding which Strauss & Corbin[9] describe as a set of procedures used to weave data together in new ways by making connections between categories. The researcher also kept memos about the interviews and data analysis as they progressed.

Analysis of the developing categories directed data collection efforts. The outcomes of the continuous analysis process determined additional questions to be asked at the next participant interview. In this way, theoretical sampling of data was achieved through directed questioning. This process enabled constant comparison of patient perceptions to either strengthen or challenge the emerging categories. The constant comparative method also uncovered a depth of range and variation within the categories. Morse[10] referred to this process as data saturation, which involved eliciting all forms or types of occurrences and valuing variation over quantity. Morse reinforced the importance of gaining rich detailed descriptions over merely noting the number of times something was stated.

RESULTS

Data analysis revealed three major categories; awareness of the problem or situation, coping responses and appraisal of the situation. The categories were linked via a three step problem solving process. In step one, the problem was identified. In step two, coping responses were initiated to try and solve the problem. In step three, the results of the coping responses were appraised or evaluated. This supports Leventhal's self-regulation theory in explaining how people adapt to perceived health threats[11]. The relationship between categories is represented in Figure 2.

Admission preparation

This time period incorporated admission to hospital and preparation for the angioplasty. The admission phase ended when the patient was transferred down to the cardiac catheter laboratory. This was a time of intense activity for both the patient and staff as preparations were made for the angioplasty. These preparations included a nursing and medical admission, recording of vital signs, electrocardiography, chest x-ray, blood tests, medical consult for informed consent and body preparation[6].

Themes within the three categories were identified in the admission phase. Continuing chest pain and fear of the unknown were identified within the category of awareness of the problem or situation. The coping response of preparing was noted and the decision to proceed was identified within the appraisal of the situation. The relationship between categories and themes is represented in Figure 3.

Awareness of the problem or situation

Continuing chest pain

Continuing chest pain and fear of the unknown were identified as themes within the category of awareness of the problem or situation. Participants described chest pain as a continuing symptom and their responses about the admission phase reflected a fully developed knowledge of chest pain. Participants were able to describe the chest pain in great detail. They described how the chest pain dictated their life by having to be hospitalised and also how the events surrounding hospitalisation had disrupted their lives.

Figure 2. Model of the problem solving process utilised in relation to the angioplasty procedure.

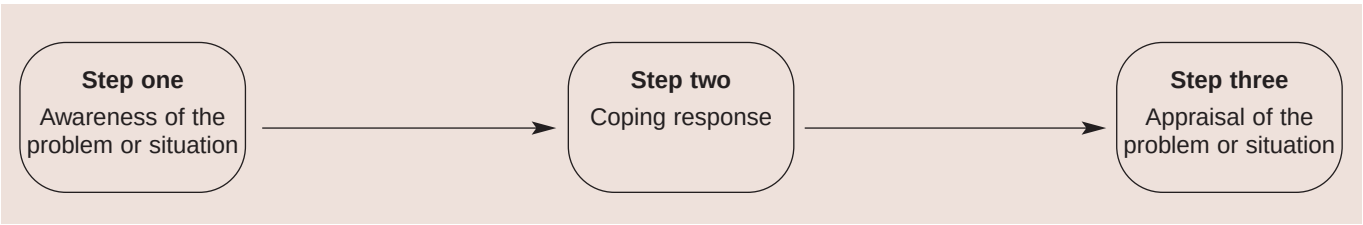
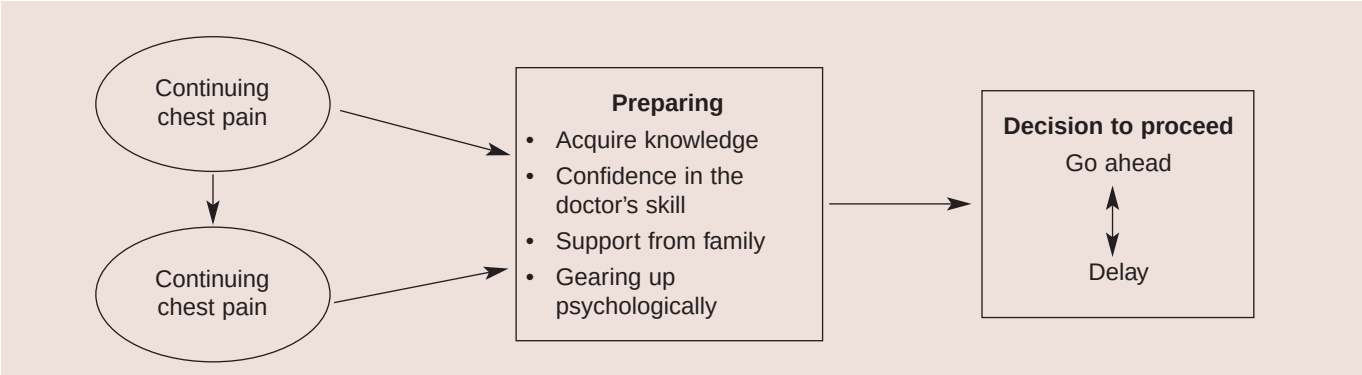


Figure 3. Model of participants' perceptions of events occurring in the admission phase.



Anxiety - fear of the unknown

There was considerable discussion by the participants in regards to anxiety which reinforced it as a central theme. Anxiety was identified in relation to fear of the unknown and highlighted the possible life threatening danger associated with damage to this vital organ. Even those who had previous experience with angioplasty or bypass surgery expressed some degree of anxiety about the unknown and life threatening consequences:

> *Well, I think every operation you have, you go in with a feeling. Because it's always a risk. And [it is] especially hard, you know, it's one of our main organs. And when anybody mentions heart trouble, you naturally feel oh, this is very delicate, so naturally you think, oh well, this could be the finish [of me].*

Three participants reported little anxiety and this was evident through their discussion, for example:

> *I have no worries about it. It was going to get rid of this pain that's all I wanted. I was just so pleased to know that someone at last, found out why I was getting this pain in the chest. I can't say [that] I have been anxious or anything.*

Acquiring knowledge

The acquisition of knowledge was a key coping response in preparation for the forthcoming angioplasty. Knowledge was sought from a variety of sources including doctors, pamphlets and experienced patients. Participants perceived the doctor to be the most important source of information. This was gained through direct consultation, discussion and questioning with positive results. For example:

> *In the hospital, you're comforted by the doctors who tell you what to do. It was good that they told you what each step was going to be … I was worried what was going to happen. Whether my whole life was going to change.*

Knowledge was also gained from pamphlets provided by nursing staff. Some participants believed this information to be thorough and very helpful. For example:

> *They gave me a lot of literature. I do read a lot and I found it gave me more information and I didn't really have to ask anything because there was enough information in the literature.*

Others expressed disappointment with a reliance on pamphlets as the main source of information rather than the doctor, preferring human interaction. For example:

> *They kept giving you books. I think you're expected to read the book and I don't think the nursing staff went through it at all. I don't like reading things in books. I try to but I'm afraid I don't get any comfort out of reading something from a book.*

Participants also sought information from experienced patients who had been through the angioplasty before. These patients were cited as an excellent source of information and contributed to decreasing anxiety.

Confidence in the skill of the doctor

Confidence in the doctor was beneficial and it appeared to quell fears and enhance feelings of comfort and support. For example:

> *I felt in good hands and I didn't think that anything could go wrong and I really just trusted both the doctors.*

Support from the family

Support from partner and family members was identified as an important coping mechanism throughout the whole angioplasty process. Participants appeared to rely on this support and appreciated having someone who would 'be there' for them and to have a loving person to talk things over with. Every participant had some degree of family support during the admission phase as the following exemplifies:

> *My wife is with me all the time… She's extremely supportive of me and does whatever she can to help my condition.*

'Gearing up' psychologically

Armed with knowledge, confidence and support, participants now appeared ready to 'psych themselves up' for the operation. This process focussed on attitudinal preparation to formulate coping thoughts and attitudes. The majority viewed the angioplasty as something they personally had to get through. For example:

> *I guess I'm a fatalist. And I just kind of accept life as it's handed out, and then I think, well, if this is the way your life's meant to end, you have to accept it. So, that's very consoling to have that attitude.*

In contrast, a couple of respondents placed responsibility for the angioplasty with the doctor. Hence the only preparation required was to 'trust in the doctor' and 'lay back and let them go for it'. This coping strategy appeared to deny any thought of the potential complications or risks associated with the operation.

In contrast to the fatalist approach, some simply 'hoped to God' everything would go well, whilst others bet on the law of averages that nothing would happen to them. Prayer or religious faith was also explored. Responses varied and those who had 'hoped to God' had not actually prayed, others who believed in a religious faith did not pray at that time and the remainder did not ascribe to any one religious faith. Irrespective of the individual coping responses employed, each participant perceived the angioplasty to be a significant event that required them to cope in some way.

Appraisal of the situation or problem

Decision to proceed

Participants' reflective appraisal appeared to be based on the problems encountered and the success of the coping responses. The commonly held perception was that the admission phase was anxiety provoking. Nine participants reported experiencing moderate to high level anxiety. Only two participants reported very little anxiety.

Participants discussed their decision; either going ahead with or delaying the angioplasty. The decision was made even though they were feeling some anxiety and fear of an unknown outcome. For example:

> *I knew I had to have treatment. And I went along with the procedure because it was something that was going to relieve my condition.*

The admission phase responses identified that chest pain was an ongoing problem. Feelings of anxiety were also expressed in relation to fear of the unknown. Coping responses were geared toward preparing for the angioplasty. The appraisal of the situation included the decision to continue despite anxiety at the thought of going through with the procedure.

DISCUSSION

The study findings provided an insight into the participants' perceptions of their experiences during the admission phase of the angioplasty process. Participants also described common problems, strategies and evaluations that were categorised as awareness of the problem, coping responses and appraisal of the situation. Each was linked to each other via a three step problem solving process – the problem was identified, coping responses were implemented and the outcomes appraised. These supported self-regulation theory as proposed by Leventhal & Johnson [11].

In the admissions phase, the awareness of chest pain was evident as an ongoing problem. However, participants now revealed a greater knowledge of their pain. Anxiety was reported in relation to fear of the unknown. A review of the literature suggested that pre-procedure anxiety was common and may influence the success of the procedure [12, 13]. Beckerman *et al.* [4] reported a qualitative study of the patients' perspective of the diagnostic procedure, coronary angiography. Participants consistently expressed anxiety about the unknown in relation to the procedural aspects of the test and the potential complications, thus supporting the findings of the current study [4].

In contrast, Gulanick *et al.* [7] conducted a qualitative study with PTCA patients. This revealed participants' lack of fear in regard to undergoing the procedure and was an unexpected result. Most of the 45 respondents described the procedure as non-threatening, routine and one they would repeat if symptoms indicated. The authors asserted that this result may reflect the beneficial effects of the preparatory information the patients received [7]. Alternatively, this result could be an artefact of the methods used as respondents were asked to recall events occurring 3 -18 months previously. In the current study, some participants described the angioplasty procedure as anxiety provoking while they were experiencing it, however, in retrospect, the experience was perceived to be "not so bad".

In the current study, participants' coping responses to anxiety included gaining knowledge, confidence in the skill of the doctor, support from their partner and "gearing themselves up" psychologically. Such findings gain support from the literature. For example, research into coping styles has highlighted the degree to which information influences anxiety and psychophysiological responses [14]. Previous studies reported decreased anxiety and improved adaptation from information strategies that were aligned to the individual's style of coping with a perceived health threat [12, 14, 15]. Gaining confidence as a coping response was supported by Beckerman *et al.* [4] who reported that patients attempted to cope with anxiety by gaining trust in the competency, efficiency and good intentions of the staff.

In the present study, the doctor was perceived to be the most important source of information. Having confidence in the skill of the doctor was also a calming influence that served to decrease fears and enhance support. This result supported the findings of Gulanick *et al.* [7] that respondents recognised the cardiologist's competence and believed they were in good hands. These authors asserted that such trust in the doctor relaxes the patient and results in a better experience.

In contrast, a survey conducted by Murray [16] reported that nurses were more valued than doctors as a source of information. Although no particular questions were directed to participants about the impact of nurses or doctors on knowledge or support, a number of participants made mention of the cardiologist. The fact that nurses were not nominated in similar circumstances suggests that they were perhaps not recognised as playing as visible a role as the doctor.

Participants also made comments about the use of information pamphlets which appeared to be a nursing educational strategy. Some found them very good whilst others were disappointed with the reliance on pamphlets alone rather than human interaction with nurses. Participants made no comments as to whether the nurses used videos or models of the heart in their education sessions. One participant commented on the psychological consequences of the perceived over-reliance on pamphlets and the lack of human interaction with nurses:

> *… it's a feeling of isolation and also you are quite anxious about what is going to happen.*

These comments may reflect inconsistencies between the information provided and the patient's coping style. Such comments support the work of Davis *et al.* [15] who reported decreased anxiety levels when pre-procedure education was aligned to the participant's individual coping style.

The literature revealed studies that have used various preparatory strategies to reduce anxiety and facilitate patient coping prior to coronary angiography. The interventions included procedural and sensory information, modelling and cognitive behavioural coping techniques. Decreased anxiety was reported as a result of these interventions [12, 15, 17, 18].

Support from family was also a coping response employed by participants in the current study and is consistent with studies reported in the literature. Yates [19] conducted a study of 132 men with coronary artery disease to investigate the relationship between social support and recovery outcomes. The study reported that spouses provided significantly more emotional support and tangible aid than health care providers did. Furthermore, participants were more satisfied with spouse support than with health care provider support [19].

The commonly held perception in the current study was that the admission phase was anxiety provoking. Participants discussed their decision; either going ahead with or delaying the angioplasty. The decision was made to proceed, although they were still feeling some anxiety and fear of the unknown outcomes.

The angioplasty experience was appraised to be either 'stressful' or a 'breeze'. Participants described a reflective appraisal of the event after its occurrence. Some reported the procedure to be stressful whilst others appeared to change their opinion in hindsight and no longer felt that the angioplasty was a stressful experience.

Limitations of the study

This study had a number of limitations. The interviews were conducted 4-6 weeks after the coronary angioplasty treatment; therefore, participants were requested to recall past events. As the initial aim was to describe the recovery phase, the 4-6 week period was thought to be appropriate. However, participants unexpectedly described events that occurred in the months to years leading to and including the time of the angioplasty. Such a time lapse may have influenced their memory of the experiences and processes described.

The researcher did not contact the participants after the interview transcript was complete in order to validate their interpretation of the data. This step may have added strength to the overall validity of the study. However, participants were asked to clarify the meanings of responses during the taped interview and any unclear statements were investigated through further questioning by the researcher. Resource limitations precluded the researcher the opportunity to revisit the participants and confirm the transcripts. The small sample size limits generalisability to other study groups.

CONCLUSION AND IMPLICATIONS FOR NURSING PRACTICE

This study has described a problem solving cycle that participants utilised when faced with situations or problems occurring whilst preparing for the angioplasty experience. These results advance nursing knowledge by providing an understanding of participants' perceptions of events leading up to the angioplasty procedure. The concepts that emerged from the study provide the potential for changes to nursing practice and further research.

The results have highlighted that the angioplasty was recognised as a very significant event in the patient's life that may be anxiety provoking and require a certain amount of psychosocial adjustment in order to cope. Previous comments in the literature have alluded to the short stay, high turnover nature of the angioplasty care system. Within such a system, nurses may view angioplasty as a highly mechanised, routine and mundane process that involves little risk to the patient. If such views exist, then nurses may not be sensitive to the psychological impact that angioplasty has on some patients. As such, further research is required to establish nurses' perceptions of angioplasty to determine if disparities exist between their perceptions and those of their patients. Nurses may improve practice by taking more time to build a rapport with the patient. This could provide the opportunity to identify concerns and implement nursing actions early to decrease anxiety. Such practices could help the patient to feel their needs were being met.

Participants revealed the doctor as the most important source of information and comfort. In contrast, nurses were not recognised as being as visible as the doctor in education and support. A perceived over-reliance by nurses on the supply of pamphlets for education over individual consultation was also highlighted. In addition, some participants expressed feelings of isolation and anxiety in relation to the lack of nursing consultation. If nurses are not visible in their education and support of the patient, then the patient may experience raised anxiety levels and feelings of isolation as demonstrated in this study. Further research is needed to investigate how nurses could make opportunities to engage in tangible and meaningful care interactions with patients and family in the short time available to them before the scheduled angioplasty.

The short amount of time spent with nurses was also an issue with participants. Alternative nursing care processes could be explored in an endeavour to maximise time with patients. Nursing information and psychological support could be provided via pre-admission consultation with nurses at outpatient clinics. Alternatively, posting out the written information about PTCA prior to admission may free up some time for the nurses to focus more on the patients' feelings and concerns. Staggered admission times that correlate to the scheduled procedure time could allow opportunity for completion of both the physical and psychological aspects of care. Opportunities to 'acquire knowledge' could be enhanced by multi-media education programmes tailored to meet individual needs and learning styles. Specific angioplasty units could be considered to care for these elective patients, rather than the busy and somewhat stressful critical care environments.

Clearly the angioplasty experience represents a period of readjustment that may be anxiety provoking for some patients as they move through various emotions and physical challenges during the various phases of the angioplasty experience.

The angioplasty process described in this study has been offered as a possible framework for nursing practice. Participants' experiences provide new knowledge of the concerns, anxieties and challenges faced when undergoing angioplasty. Providing the patients' point of view clearly indicated that psychosocial aspects of nursing care are an essential component of nursing practice for angioplasty patients.

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CHEST X-RAY QUIZ

Compiled by Marea Reading, CNC St Vincent's Hospital Sydney and Australian Catholic University, MacKillop Campus, North Sydney.

This is a chest x-ray of a 29 year old male who presented to the emergency department with a 1.5 hour history of right sided chest pain and shortness of breath. No history of asthma. He was a non-smoker. On examination, the trachea was deviated to the left, no air entry and a hyperresonant note to percussion over the right chest. What is the problem? How will it be managed?

For answers and discussion, turn to page 75 of this issue.